Stellar explosion rocks the universe

November 12, 2017

Stellar explosion rocks the universe

by Chris Fryer, Oleg Korobkin and Ryan Wollaeger

Astrophysicists at Los Alamos National Laboratory were enjoying a typical Friday evening with friends and family on Aug. 25, 2017, when they began hearing excited chatter about a major new astronomical observation pouring in over the phone and social media. Breaking news doesn't happen that often in astronomy, and this was big. LIGO, the Laser Interferometer Gravitational-wave Observatory, had detected another gravitational-wave signal, just the fifth announced by the LIGO team since the observatory began operating two years ago.

The signal appeared to be coming from two neutron stars merging in a galaxy 130 million light-years away. The resulting cataclysm was still going on and giving off not just gravitational waves, but light and other electromagnetic radiation across the spectrum, a combination of signals that earned it the moniker of "multi-messenger" event.

Neutron-star mergers are a specialty for the Center for Theoretical Astrophysics at Los Alamos National Laboratory, a team that develops theoretical models, runs them as simulations on the lab's unique supercomputers, then tests those models and simulations against evidence from astronomical observations as they come in.

This story first appeared in Santa Fe New Mexican.